भारतीय मानक **IS 16326 : 2015**

Indian Standard **(Reaffirmed 2020)**

घी — विशिष्टि

Ghee — Specification

ICS 67.100.01; 67.100.10; 67-100.99

© BIS 2015

भारतीय मानक ब्यूरो
B U R E A U OF I N D I A N S T A N D A R D S
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली–110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.org.in www.standardsbis.in

August 2015 **Price Group 2**

Dairy Products and Equipment Sectional Committee, FAD 19

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Dairy Products and Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

Ghee is a class of clarified butter that originated in India and is commonly used in South Asian cuisine. Ghee, is an important dairy product which enters inter-state trade. Due to variation in its composition from region to region and season to season, depending on the type of animal and the feed given, the establishment of its purity often involves elaborate analysis, as well as tests for its keeping quality. This standard which describes requirements, methods of sampling and test for ghee is being formulated to help dairy industry in ensuring better quality control and making available quality goods to the consumer.

The standard has been aligned with *Ghee Grading and Marking Rules*, 1938.

In the formulation of this standard, due consideration has been given to the *Food Safety and Standards Act*, 2006 and Regulations framed thereunder; the *Legal Metrology Act,* 2009 and Rules framed thereunder and the *Essential Commodities Act*, 1955. However, this standard is subject to restrictions imposed under these, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding-off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

GHEE — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for ghee.

2 REFERENCES

The following standards contain provision which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1070 : 1992	Reagent grade water — Specification (*third revision*)
2491 : 2013	Food hygiene — General principles — Code of practice (*third revision*)
3508 : 1966	Method of sampling and test for ghee
3509 : 1966	Method of sampling and test for cream
5401 (Part 1) : 2012	Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms: Part 1 Colony count technique (*second revision*)
10142 : 1999	Polystyrene (crystal and high impact) for its safe use in contact with foodstuffs, pharmaceuticals and drinking water — Specification (*first revision*)
10146 : 1982	Specification for polyethylene for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
10151 : 1982	Specification for polyvinyl chloride (PVC) and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
10325 : 2000	Square tins – 15 kg/litre for ghee, vanaspati, edible oils and bakery shortenings — Specification (*second revision*)
10339 : 2000	Ghee, vanaspati, edible oil tins up to 10 kg/litre capacity — Specification (*second revision*)
10910 : 1984	Specification for polypropylene and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
11434 : 1985	Specification for ionomer resins for its safe use in contact with foodstuffs, pharmaceutical and drinking water
11546 : 2012	Milk and milk products — Guidance on sampling (*second revision*)
11704 : 1986	Specification for ethylene acrylic acid (EAA) copolymers for their safe use in contact with foodstuffs, pharmaceuticals and drinking water
12247 : 1988	Specification for nylon-6 polymer for its safe use in contact with foodstuffs pharmaceuticals and drinking water
12252 : 1987	Specification for polyalkylene terephthalates (PET and PBT) for their safe use in contact with foodstuffs, pharmaceuticals and drinking water
13576 : 1992	Ethylene menthacrylic acid (EMAA) copolymers and terpolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water — Specification
13601 : 1993	Ethylene vinyl acetate (EVA) copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water — Specification
14636 : 1998	Flexible packaging materials for packaging of edible oils, ghee and vanaspati

3 TERMINOLOGY

For the purpose of this standard, the following definition shall apply.

3.1 Ghee — Ghee means the pure clarified fat derived solely from milk or curd or from desi (cooking) butter or from cream to which no colouring matter or preservative has been added.

4 REQUIREMENTS

4.1 Description

4.1.1 *Texture*

When cooled below the melting point, the solid phase of ghee shall be of well defined granular texture.

4.1.2 *Colour*

Colour of ghee shall be white with or without yellowish or greenish tint and shall be uniform throughout.

4.1.3 Ghee shall be pure, clarified milk fat only and shall have a natural, sweet, pleasant odour, agreeable taste and shall be free from rancid or other objectionable flavour.

4.1.4 Ghee shall be free from excess moisture and on melting, it shall be clear, transparent and free from sediment or foreign coloring matter.

4.1.5 The process of manufacturing shall be such as to retain the essential characteristics of ghee which shall be heated at any time at a suitable temperature to meet the regional preferences.

4.1.6 Phenolphthalein test conducted as per **18** of IS 3508, phytosteryl acetate test conducted as per **20** of IS 3508 and tests for the presence of animal fats (other than milk fats) as per ISO 17678 (*see* Note) shall be negative.

NOTE — Till such time the study for validation and standardization of the GC analysis method given in ISO 17678 : 2010 'Milk and milk products — Determination of milk fat purity by gas chromatographic analysis of triglycerides (Reference method)' for determination of milk fat purity in bovine milk other than cow's milk is completed, method given in ISO 17678 may be used for determination of milk fat purity in ghee.

4.1.7 Baudouin test as per **21** of IS 3508 shall be negative.

4.1.8 Ghee may contain butylated hydroxyanisole (BHA) at a concentration not exceeding 0.02 percent.

4.1.9 Ghee shall also comply with the requirements given in Table 1.

Table 1 Requirements for Ghee

(*Clause* 4.1.9)

Sl No. (1)	Characteristic (2)	Requirement (3)	Method of Test, Ref to (4)
i)	Milk fat, percent by mass, *Min*	99.5	Clause **4** of IS 3509
ii)	Peroxide value, milli-equivalent of peroxide oxygen per kg of sample, *Max*	0.6	Clause **22** of IS 3508
iii)	Coliform, per gram	Absent	IS 5401 (Part 1)

4.1.10 The Butyro-Refractometer reading at 40°C of ghee determined as per **6** of IS 3508 and Reichert Meissl value and Polenske value of ghee determined as per **12** of IS 3508 shall be characteristic of the place or district where it is produced. The Butyro - Refractometer reading at 40°C, Reichert Meissl value and Polenske value of ghee produced in a State or Union Territory specified in col 2 of Table 2 shall be as specified against said State or Union Territory in the corresponding col 3, 4 and 5 of Table 2.

Table 2 State or Union Territory-Wise Requirements for Ghee

(*Clause* 4.1.10)

Sl No. (1)	Name of the State/Union Territory (2)	Butyro Refractometer Reading at 40°C (3)	Reichert Meissl Value, *Min* (4)	Polenske Value (5)
i)	Andhra Pradesh	40.0 – 43.0	24	1.0 – 2.0
ii)	Andaman and Nicobar Islands	41.0 – 44.0	24	1.0 – 2.0
iii)	Arunachal Pradesh	40.0 – 43.0	26	1.0 – 2.0
iv)	Assam	40.0 – 43.0	26	1.0 – 2.0
v)	Bihar	40.0 – 43.0	28	1.0 – 2.0
vi)	Chandigarh	40.0 – 43.0	28	1.0 – 2.0
vii)	Chhattisgarh	40.0 – 44.0	26	1.0 – 2.0
viii)	Dadra and Nagar Haveli	40.0 – 43.0	24	1.0 – 2.0
ix)	Delhi	40.0 – 43.0	28	1.0 – 2.0
x)	Goa	40.0 – 43.0	26	1.0 – 2.0
xi)	Daman and Diu	40.0 – 43.5	24	1.0 – 2.0
xii)	Gujarat:			
	a) Areas other than cotton tract areas[1)]	40.0 – 43.5	24	1.0 – 2.0
	b) Cotton tract areas[1)]	41.5 – 45.0	21	0.5 – 1.2 Winter (September - February) 0.5 – 1.0 Summer (March - August)
xiii)	Haryana:			
	a) Areas other than cotton tract areas[1)]	40.0 – 43.0	28	1.0 – 2.0
	b) Cotton tract areas[1)]	40.0 – 43.0	26	0.5 – 1.2 Winter (September - February) 0.5 – 1.0 Summer (March - August)

Table 2 — (*Concluded*)

(1)	(2)	(3)	(4)	(5)
xiv)	Himachal Pradesh	40.0 – 43.0	26	1.0 – 2.0
xv)	Jammu and Kashmir	40.0 – 43.0	26	1.0 – 2.0
xvi)	Jharkhand	40.0 – 43.0	28	1.0 – 2.0
xvii)	Karnataka:			
	a) Areas other than Belgaum district	40.0 – 43.0	24	1.0 – 2.0
	b) Belgaum district	40.0 – 44.0	26	1.0 – 2.0
xviii)	Kerala	40.0 – 43.0	26	1.0 – 2.0
xix)	Lakshwadeep	40.0 – 43.0	26	1.0 – 2.0
xx)	Madhya Pradesh:			
	a) Areas other than cotton tract areas[1)]	40.0 – 44.0	26	1.0 – 2.0
	b) Cotton tract areas[1)]	41.5 – 45.0	21	0.5 – 1.2 Winter (September - February) 0.5 – 1.0 Summer (March - August)
xxi)	Maharashtra:			
	a) Areas other than cotton tract areas[1)]	40.0 – 43.0	26	1.0 – 2.0
	b) Cotton tract areas[1)]	41.5 – 45.0	21	0.5 – 1.2 Winter (September - February) 0.5 to 1.0 Summer (March - August)
xxii)	Manipur	40.0 – 43.0	26	1.0 – 2.0
xxiii)	Meghalya	40.0 – 43.0	26	1.0 – 2.0
xxiv)	Mizoram	40.0 – 43.0	26	1.0 – 2.0
xxv)	Nagaland	40.0 – 43.0	26	1.0 – 2.0
xxvi)	Orissa	40.0 – 43.0	26	1.0 – 2.0
xxvii)	Pondicherry	40.0 – 44.0	26	1.0 – 2.0
xxviii)	Punjab	40.0 – 43.0	28	1.0 – 2.0
xxix)	Rajasthan:			
	a) Areas other than Jodhpur district	40.0 – 43.0	26	1.0 – 2.0
	b) Jodhpur district	41.5 – 45.0	21	1.0 – 2.0
xxx)	Sikkim	40.0 – 43.0	28	1.0 – 2.0
xxxi)	Tamil Nadu	41.0 – 44.0	24	1.0 – 2.0
xxxii)	Tripura	40.0 – 43.0	26	1.0 – 2.0
xxxiii)	Uttar Pradesh	40.0 – 43.0	26	1.0 – 2.0
xxxiv)	Uttarakhand	40.0 – 43.0	26	1.0 – 2.0
xxxv)	West Bengal:			
	a) Areas other than Bishnupur sub division	40.0 – 43.0	28	1.0 – 2.0
	b) Bishnupur sub division	41.5 – 45.0	21	1.0 – 2.0

[1)] By cotton tract is meant the areas in the states where cotton seed is extensively fed to the cattle and so notified by the State Government concerned.

4.1.11 Ghee shall be graded based on free fatty acid (percent by mass) and moisture (percent by mass) as given in Table 3.

Table 3 Grading for Ghee

(*Clause* 4.1.11)

Sl No.	Characteristic	Requirement			Method of Test, Ref to
		Grade I	Grade II	Grade III	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Free fatty acid as oleic acid, percent by mass, *Max*	1.4	2.5	3.0	Clause **11** of IS 3508
ii)	Moisture, percent by mass, *Max*	0.3	0.3	0.5	Clause **4** of IS 3508

5 PACKING

5.1 Each package shall contain ghee of one melt only.

5.2 The container shall be free from insect infestation, fungus contamination or any obnoxious and undesirable smell.

5.3 The material shall be supplied in suitable well-closed tin, glass and plastic containers, as agreed to between the purchaser and the supplier.

5.4 Tin and plastic containers once used, shall not be re-used for packaging of edible oils and fats.

5.5 The glass bottles, if returned by the consumers, may be used again for packaging ghee after proper cleaning and disinfection.

5.6 Containers made of plastic materials shall be as per IS 10142 or IS 10146 or IS 10151 or IS 10910 or IS 11434 or IS 11704 or IS 12247 or IS 12252 or IS 13576 or IS 13601 or IS 14636.

5.7 Containers made of tin shall be as per IS 10325 or IS 10339.

5.8 Net quantity of ghee packed in container shall be in accordance with the standard sizes or units of packing as prescribed under the *Legal Metrology Act,* 2009 and Rules framed thereunder.

6 MARKING

6.1 The following information shall be marked legibly and indelibly on each container:

a) Name of the product;
b) Net quantity;
c) Name and address of the manufacturer;
d) Date of packing;
e) Melt number and batch or code number;
f) Tins and plastic containers shall be marked as follows: 'This container shall not be reused for packaging oils and fats'; and
g) Any other requirements under the *Food Safety and Standards (Packaging and Labelling) Regulations*, 2011 and the *Legal Metrology Act,* 2009 and Rules framed thereunder.

6.2 BIS Certification Marking

The product may also be marked with Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 HYGIENIC CONDITIONS

Ghee shall be manufactured under hygienic conditions as prescribed in IS 2491.

8 SAMPLING

Representative sample of ghee shall be drawn and tested for conformity to this standard by the method prescribed in IS 3508 and IS 11546.

9 TESTS

9.1 Tests shall be carried out as prescribed in IS 3508 and IS 5401 (Part 1).

9.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be used in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc No.: FAD 19 (2569).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.org.in

Regional Offices:		*Telephones*
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700054	2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	260 3843 260 9285
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	2254 1216, 2254 1442 2254 2519, 2254 2315
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	2832 9295, 2832 7858 2832 7891, 2832 7892

Branches: AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. DEHRADUN. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KOCHI. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. VISAKHAPATNAM.

Published by BIS, New Delhi